

WHAT IS CLAIMED IS:

1. A rotation-stop mechanism for a folder of a portable wireless terminal, the portable wireless terminal comprising a terminal body, the folder rotatably coupled to the terminal body and adapted to rotate about a first rotation axis extending 5 transversely to the terminal body so as to be opened away from or closed to the terminal body, and a hinge module for rotatably coupling the terminal body to the folder, wherein

the terminal body is formed with side hinge arms at both sides of its one end, and the folder is formed at its one end with a center hinge arm rotatably coupled 10 between the side hinge arms through the hinge module, and

the hinge module is received in the center hinge arm and adapted to provide a rotating force for causing the folder to be opened away from or closed to the terminal body according to its opened angle from the terminal body;

the rotation-stop mechanism comprising:

15 a hinge dummy having at least two hinge holes extending radially, the hinge dummy being fixed to an inner surface of one of the side hinge arms; a hinge protrusion protruded through one end of the hinge module and adapted to be selectively coupled into one of the hinge holes; and

20 a button mounted on the one of the side hinge arms, the button serving to separate the hinge protrusion from the hinge hole.

2. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 1, wherein the hinge holes are comprised of first and second hinge holes, which cross each other at a certain angle on the first rotation axis.

25 3. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 2, wherein the second hinge hole has symmetrically curved surfaces of a gentle slope.

4. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 1, wherein the button linearly reciprocates in a direction of the first rotation axis, and is formed with a release protuberance extended to the inner surface of the side hinge arm, and whereby the button, when it is pushed, serves to cause the hinge 5 protrusion to be separated from the hinge hole by the release protuberance.

5. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 2, wherein in a state in which the folder comes into close contact with the terminal body and is thus closed to the terminal body, the hinge protrusion is coupled into the first hinge hole, and the hinge module accumulates a rotating force therein, the rotating 10 force acting to cause the folder to be closed to the terminal body.

6. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 5, wherein as the button is pushed, the hinge protrusion is separated from the first hinge hole and adapted to rotate at a certain angle by the rotating force accumulated in the hinge module.

15 7. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 6, wherein if the folder rotates to be opened away from the terminal body, the hinge protrusion rotates with the folder, and is coupled into the second hinge hole at a position where the folder is opened at an angle of or about 90°, thereby stopping rotation of the folder.

20 8. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 7, wherein if the folder further rotates to be opened away from the terminal body, the hinge protrusion is separated from the second hinge hole and coupled into the first hinge hole in a state wherein the folder is completely opened.

9. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 8, wherein the hinge dummy is further formed with an inclined surface adjacent to the second hinge hole, and the hinge protrusion is separated from the second hinge hole by a rotating force of the folder.

5 10. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 8, wherein the hinge protrusion is separated from the second hinge hole when the button is pushed.

10 11. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 5, wherein if the folder is opened away from the terminal body in excess of a certain angle in a state wherein the hinge protrusion is coupled into the first hinge hole, the folder is opened to a predetermined angle within a range from at or about 90° to at or about 180° by the rotating force of the hinge module.

15 12. A rotation-stop mechanism for a folder of a portable wireless terminal, the portable wireless terminal comprising a terminal body formed with side hinge arms at both sides of its one end, the folder formed at its one end with a center hinge arm rotatably coupled between the side hinge arms and adapted to rotate about a first rotation axis extending transversely to the terminal body, and a hinge module for rotatably coupling the terminal body to the folder, wherein the hinge module comprises:

20 a hinge housing received in the center hinge arm, the hinge housing having a receiving space opened at its one side, an opening formed at one end thereof, and a sliding guide slit extending longitudinally along an inner surface thereof;

25 a hinge shaft rotatably received in one end of the receiving space defined in the hinge housing, the hinge shaft being formed at its one end with a hinge protrusion protruding outwardly through the opening of the hinge housing and at the other end with valley-shaped portions;

 a hinge cam formed at its one end with mountain-shaped portions corresponding

to the valley-shaped portions of the hinge shaft, and at its outer peripheral surface with a sliding step corresponding to the sliding guide slit of the hinge housing, the hinge cam being adapted to linearly reciprocate within the receiving space; and

5 elastic means adapted to support the other end of the hinge cam and to cause the hinge cam to come into close contact with the hinge shaft, and wherein the rotation-stop mechanism comprises:

10 a hinge dummy fixed to an inner surface of one of the side hinge arms, the hinge dummy having radially extended first and second hinge holes, the first and second hinge holes crossing each other at a certain angle on the first rotation axis, thereby being selectively coupled with the hinge protrusion.

13. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 12, further comprising:

15 a button coupled to an outer surface of the one of side hinge arms and adapted to linearly reciprocate in a direction of the first rotation axis, the button being formed with a release protuberance extended to the inner surface of the side hinge arm, whereby the button, when it is pushed, serves to cause the hinge protrusion to be separated from the first hinge hole or second hinge hole by the release protuberance.

14. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 13, further comprising:

20 a cover fixedly coupled to an outer side of the side hinge arm and formed with an opening, through which the button is protruded outwardly.

15. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 12, wherein in a state in which the folder is in close contact with the terminal body and closed to the terminal body, the hinge protrusion is coupled into the first hinge hole of the hinge dummy, and the hinge module accumulates an rotating force therein, which acts to cause the folder to come into close contact with the terminal body.

16. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 12, wherein if the hinge protrusion is coupled into the second hinge hole in a state wherein the folder rotates and is opened perpendicular or substantially perpendicular to the terminal body, the valley-shaped portions of the hinge shaft and the
5 mountain-shaped portions of the hinge cam are engaged with each other and therefore the rotation of the folder is stopped.

17. The rotation-stop mechanism for the folder of the portable wireless terminal as set forth in claim 16, further comprising:

an inclined surface for allowing the hinge protrusion to be easily separated from the
10 second hinge hole as the folder rotates to be opened, the inclined surface being formed along a rotating direction of the hinge protrusion from the second hinge hole, wherein if the folder further rotates to be opened away from the terminal body in a state wherein the folder is opened perpendicular or substantially perpendicular to the terminal body, the hinge protrusion is separated from the second hinge hole and therefore rotates with the
15 folder.